REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 23-44 are in the case.

I. THE PRIOR ART REJECTIONS

Claims 23-44 stand rejected under 35 U.S.C. §102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over Farley *et al.* (US 2003/021 5659) (Farley). Claims 23-25, 28, 30 and 37-44 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by Ohlsson (US 2004/0053022). The rejections are respectfully traversed.

The claimed invention is directed to a polymer blend comprising:

(a) 1 - 99% by weight of a copolymer of ethylene and an alpha olefin having from 3 to 10 carbon atoms, in which copolymer has (i) a density in the range 0.905 to 0.940 g cm^{-3}, (ii) a melt elastic modulus G' (G" = 500 Pa) in the range 10 to 150 Pa, and (iii) a melt index ($190^{0}C$/2.16 kg) in the range 5 to 50 g/10 ml; and

(b) from 1 - 99% by weight of a low density polyethylene (LDPE) comprising a homopolymer of ethylene having a density from 0.914 to 0.928 g cm^{-3}, wherein the sum of (a) and (b) is 100 %.

The present invention is therefore directed to blends of (a) copolymer of ethylene and α-olefin and (b) a homopolymer of ethylene. The present blends have been found to be particularly useful for extrusion coating applications (see page 13 lines 29 - page 14 line 9 and claims 43 and 44). As will be clear from the discussion below, neither the blends of the present invention, nor this application of the blends, is disclosed or suggested by Farley nor disclosed by Ohlsson.

Farley describes blends of (a) very low density polyethylenes (VLDPE's) and (b) low density polyethylenes (LDPE), which may be used for extrusion coating applications. However, the distinguishing feature between the presently claimed invention and Farley is the melt elastic modulus of the copolymers of component (a) of the claimed blends of the present invention. Claim 23 of the present application requires the melt elastic modulus to be in the range 10 to 150 Pa. While Farley does not describe the melt elastic modulus of the polymers described therein, there is sufficient disclosure of rheology properties of the polymers of Farley for one of ordinary skill to reach the conclusion that the melt elastic modulus values of the copolymers employed by Farley are lower than those of the copolymers employed in the presently claimed blends.

Farley describes metallocene-produced VLDPEs with preferably linear polymers, i.e., **without** long chain branching (see page 9, para [0144]. This is further seen from page 10 para [0152] where Farley discloses that the long chain branching of the polymers should be reduced and that, with respect to the metallocenes used for their preparation, these are preferably bisCp metallocenes rather than monoCp metallocenes. Preferred catalyst systems are those which will minimize or eliminate long chain branching and are based on unbridged bisCp zirconocenes. The examples of Farley use such a catalyst, namely bis(1,3-methyl,n-butyl cyclopentadienyl) zirconium dichloride (see page 17).

In the present invention, on the other hand, the copolymers of component (a) have a degree of long chain branching. The copolymers are prepared by the use of monoCp metallocene complexes (see page 4 and examples), and the higher values for

the melt elastic modulus of the copolymers employed in the blends of the present application are expected due to the presence of some long chain branching.

In Table II at column 19 of Farley, examples of metallocene VLDPE's of Farley have melt flow ratios of 16.7 and 17.1. However, at page 15, paras [0206 and 0208] of Farley, it is further disclosed that the metallocene VLDPE's for use in coating applications the polymers exhibit a melt flow ratio (I_{21}/I_2) in the range 6 – 15 dg/min and preferably in the range 9 – 12.

On analysis, a copolymer representative of component (a) of the present invention exhibits a melt flow ratio of 18.

At column 21 of Farley, Table IV discloses a number of polymers including sample A and comparatives B and D made with metallocene catalysts. Sample A has a melt flow ratio of 17.29 and the aforementioned comparative polymers have melt flow ratios of 16.36 and 16.54 respectively. Commercial resins of ExxonMobil (the assignee of Farley) are well known in the art and typical resins made with bisCp metallocene catalysts under the commercial names - Exxon 350D60, ML1018FB and 1018CA (available at the time of the filing of Farley) have been demonstrated to have melt flow ratios of 16.3, 16.1 and 17.8 respectively, which is therefore typical of the examples of Farley. The aforementioned commercial resins have been further analyzed to determine their melt elastic modulus which has been found to be in the range 7.9 – 9.0 Pa, i.e., less than the melt elastic modulus range of 10-150 Pa of the copolymers employed in the presently claimed blends.

Based on the above, it is clear that there is a strong indication that the VLDPEs of Farley would exhibit a melt elastic modulus in the range of 7.9 – 9.0 Pa, which is

lower than the range required for the claimed blends, i.e., 10 – 150 Pa. The lower values for the melt elastic modulus of the copolymers of Farley would be expected by one of ordinary skill due to the absence of long chain branching.

The VLDPEs of Farley are therefore outside the scope of component (a) of the claims of the present invention based on melt elastic modulus. The VLDPEs of the present invention additionally exhibit other properties, for example the copolymers exhibit a CDBI of > 85% and also a single peak in TREF. On the other hand, the VLDPEs disclosed in Farley exhibit lower CDBIs in the range 55 -70 % (see page 2) and a bimodal composition distribution (see page 2 para [0017] and claims). Example 1 in Table IV of Farley exhibits a CDBI of 64.5.

Based on the above, and in particular the higher melt elastic modulus values of the copolymers employed in the presently claimed blends, it is believed that Farley does not anticipate the present invention as claimed. Moreover, there is no suggestion of the presently claimed invention, since the absence of absence of long chain branching in the Farley copolymers would lead one of ordinary skill to expect the melt elastic modulus to be lower than that of the copolymers employed in the claimed blends. Withdrawal of the prior art rejection based on Farley is respectfully requested

Referring to the anticipation rejection over Ohlsson, the copolymers of Ohlsson exhibit a melt index ratio (I_{21}/I_2) in the range 30 to 80 (see page 2 para [0025]). From Table 2 on page 14, resin examples 1 and 2 exhibit melt flow ratios of 46 and 57.6, respectively.

On the other hand, typical polymers of component (a) of the present invention exhibit melt flow ratios of about 18 which is lower than that reported for the copolymers

of Ohlsson. Ohlsson therefore does not anticipate (or suggest) the presently claimed invention. Withdrawal of the anticipation rejection based on Ohlsson is respectfully requested.

II. WITHDRAWAL OF FINALITY

Neither Farley nor Ohlsson has been relied upon in a rejection in this case prior to the outstanding final rejection. It is believed therefore that the outstanding rejection should not have been made final, and that the Applicant should have been afforded an opportunity to consider and respond to the newly cited references in the context of a non-final rejection. Withdrawal of the finality of the outstanding Action is accordingly respectfully requested.

III. CLAIM AMENDMENTS

The claims have been amended to correct obvious typographical errors. No new matter is entered.

Favorable action is awaited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /Leonard C. Mitchard/
Leonard C. Mitchard
Reg. No. 29,009

LCM:lff
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100